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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,002	10/24/2003	Mike West	DU-P02-002	2470

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EXAMINER
LIN, JERRY

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 05/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/692,002	WEST ET AL.
	Examiner	Art Unit	
	Jerry Lin	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 October 2003</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-14</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) <u>1-14</u> are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2 pages</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement filed January 25, 2005 fails to comply with

37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document;

each non-patent literature publication or that portion which caused it to be listed; and all

other information or that portion which caused it to be listed. It has been placed in the

application file, but the information referred to therein has not been considered.

Specification

2.   The disclosure is objected to because it contains an embedded hyperlink and/or

other form of browser-executable code. Applicant is required to delete the embedded

hyperlink and/or other form of browser-executable code. See MPEP § 608.01. For

example see pages 58, 62-64, 80.

Applicant is reminded of the proper language and format for an abstract of the
disclosure.

The abstract should be in narrative form and generally limited to a single
paragraph on a separate sheet within the range of 50 to 150 words. It is important that
the abstract not exceed 150 words in length since the space provided for the abstract
on the computer tape used by the printer is limited. The form and legal phraseology
often used in patent claims, such as "means" and "said," should be avoided. The
abstract should describe the disclosure sufficiently to assist readers in deciding whether
there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information
given in the title. It should avoid using phrases which can be implied, such as, "The
disclosure concerns," "The disclosure defined by this invention," "The disclosure
describes," etc.

The abstract of the disclosure is objected to because the abstract is too long.

Correction is required. See MPEP § 608.01(b).

Claim Objections

3.   Claim 7 is objected to because of the following informalities: there is a typo "o" in

line 8 of the instant claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112, 2nd Paragraph

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 3-7, 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

6.   Regarding claim 3, the phrase "such that" renders the claim indefinite because it

is unclear whether the limitations following the phrase are part of the claimed invention.

See MPEP § 2173.05(d). Furthermore since the phrase follows a broader limitation,

"case control design", it is unclear if it is intended to limit "case control design" or if it is

intended to limit "data". For purposes of this examination, this claim will be interpreted

to mean that the data arises by case control design.

7.   Claim 3 recites the limitation "the response data" in line 2. There is insufficient

antecedent basis for this limitation in the claim. This limitation does not appear

previously in the instant claim or in the claims from which it depends.

8.   Claim 3 recites the limitation "the number" in line 2. There is insufficient

antecedent basis for this limitation in the claim. This limitation does not appear

previously in the instant claim or in the claims from which it depends.

9.   Claim 5 provides for the use of sequences of Bayes factor based tests, but, since

the claim does not set forth any steps involved in the method/process, it is unclear what

method/process applicant is intending to encompass. A claim is indefinite where it

merely recites a use without any active, positive steps delimiting how this use is actually

practiced.

10.   Instant claim 6 recites the term "principles of model averaging." This term is not

defined in the specification nor is it an well-known term in the art. It is unclear what is

meant by principles of model averaging. One interpretation is that it is directed to a

particular process of analyzing a model. Another interpretation is that it is user defined

and not specifically directed toward any widely understood process. For the purposes

of this examination, the latter interpretation will be used.

11.   Claim 6 recites the term "the forward generation" in line 1. There is insufficient

antecedent basis for this limitation in the claim. This limitation does not appear

previously in the instant claim or in the claims from which it depends.

12.   Claim 6 is also unclear because it recites the generation of other trees.

However, claim 6 depends on claim 1 which is directed to a single tree. The two claims

appear to contradict each other.

13.   Claims 7 is unclear because it recites the limitation "evaluation." One

interpretation of this limitation is that the data is compared against a criteria. Another

interpretation of this limitation is that the data is use as an input into another algorithm.

For purposes of this examination the former interpretation will be used.

14.   Claims 13 and 14 recites the term "the data". There is insufficient antecedent

basis for this limitation in the claim. This limitation does not appear previously in the

instant claim or in claim 1 from which it depends.

Claim Rejections - 35 USC § 101

15.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

16.   Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

The instant claims are drawn to a classification tree model incorporating

Bayesian analysis and how the tree is structured.

The instant claims are drawn to a mathematical algorithm. A mathematical

algorithm is non-statutory unless the claims include a step of physical transformation, or

if the claims include a useful, tangible and concrete result. It is important to note, that

the claims themselves must include a physical transformation step or a useful, tangible

and concrete result in order for the claimed invention to be statutory. It is not sufficient

that a physical transformation step or a useful, tangible, and concrete result be asserted

in the specification for the claims to be statutory. In the instant claims, there is no step of

physical transformation, thus the Examiner must determine if the instant claims include

a useful, tangible, and concrete result.

In determining if the instant claims are useful, tangible, and concrete, the Examiner must determine each standard individually. For a claim to be "useful," the claim must produce a result that is specific, substantial, and credible. For a claim to be "tangible," the claim must set forth a practical application of the invention that produces a real-world result. For a claim to be "concrete," the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. Furthermore, the claim must recite a useful, tangible, and concrete result in the claim itself, and the claim must be limited only to statutory embodiments. Thus, if the claim is broader than the statutory embodiments of the claim, the Examiner must reject the claim as non-statutory.

The instant claims do not include any tangible result. A tangible requirement requires that the claim must set forth a practical application of the mathematical algorithm to produce a real-world result. The instant claims are drawn to a classification tree model. There is no recitation of communication the information from this model to the real world. Since there is no communication, the model may reside entirely within the memory of a computer. Thus the instant claims do not have a real-world result, and hence no tangible result.

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18.   Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Buntine (Statistics and Computing (1992) Volume 2, pages 63-73).

The instant claims are drawn to a classification tree model incorporating Bayesian analysis and how the tree is structured. However, it is noted that as in claim 1, the phrase "for statistical prediction of binary outcomes" is a recitation of intended use and as such is not given patentable weight.

Regarding claims 1-4, Buntine teaches a classification tree model with Bayesian analysis for the statistical prediction of binary outcomes (abstract; page 63); wherein the binary outcome is dependent on the interaction of data comprising at least two predictor variables (abstract; page 63, Figure 1); where the data arises by case control design (abstract; page 63, Figure 1); where the case control design assesses the association between predictors and binary outcome with nodes of tree (the class probability tree includes the probability at each node in relation to the outcome) (page 63, right column; Figure 1; page 64, right column, under "Basic Framework" – page 65, left column).

Regarding claims 5 and 6, Buntine teaches using sequences of Bayes factor based tests of association to rank and select predictors that define anode split (page 65, left column, bottom – page 66, left column); generating multiple trees and averaging the trees to determining the prediction of the trees (page 67, left column , first two paragraphs; page 69, right column, bottom – page 70, left column, top paragraph).

Regarding claim 7, Buntine teaches where the model averaging included weighted prediction of a tree by determining it implied probability by a score (page 66, right column; page 67, left column, top two paragraphs); evaluation of the score to exclude unlikely trees (page 68, left column bottom); evaluation of posterior and predictive distribution at each node and leaf (page 68, left column, bottom – page 69); using the posterior and predictive distribution to evaluate the tree (page 68, left column, bottom – page 69) and averaging prediction across trees (page 69, right column top).

Regarding claims 8-14, Buntine teaches where the binary outcome is a clinical state, physiological state, a physical state, disease state, or a risk group (page 63, right column; Figure 1); where the data is biological data (page 63, right column; Figure 1; page 66, left column 2nd full paragraph from the bottom) or where the data is statistical data (from the class probability tree) (page 63, right column; Figure 1).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Lin whose telephone number is (571) 272-2561. The examiner can normally be reached on 10:00am-6:30pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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JL

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PRIMARY EXAMINER